

What Is Claimed Is:

1. A communications system comprising:
  - a first deployment of a plurality of satellites deployed in a medium earth orbit on an equatorial plane;
  - 5 a second deployment of a plurality of satellites deployed in the medium earth orbit on the equatorial plane interleaved with said first deployment.
2. A communications system as recited in claim 1 wherein said medium earth orbit is substantially about 15000 km above the earth.
3. A communications system as recited in claim 1 wherein said first deployment reuses the same frequencies as geostationary satellites.
4. A communications system as recited in claim 1 wherein said second deployment reuses the same frequencies as geostationary satellites.
5. A communications system as recited in claim 1 further comprising a third deployment of satellites deployed on an orbit inclined with respect to the equatorial plane.
6. A communications system as recited in claim 5 wherein said third deployment reuses the same frequencies as geostationary satellites.

7. A satellite constellation as recited in claim 1 wherein said satellites communicate at c, ku or ka bands.

8. A communication system for mobile and fixed service users, comprising:

at least four satellites in a medium earth orbit spaced in a first configuration to provide  
5 semi-global coverage;

at least one ground terminal having a fixed one-dimensional antenna; and

at least one ground terminal having a two-dimensional tracking antenna.

9. A communication system as recited in claim 8 wherein said at least four satellites are position-adjustable satellites that are spaced apart such that subsequently deployed satellites can be interleaved  
5 therebetween.

10. A communication system as recited in claim 8 wherein said at least one ground terminal provides tracking and communication control at a fixed site.

11. A communication system as recited in claim 8 wherein said at least one ground terminal provides network operational control for various communications.

12. A communication system as recited in claim 8 wherein said at least one ground terminal provides satellite position control at a fixed site.

13. A communication system as recited in claim 8 wherein said at least one ground terminal is coupled to a terrestrial communications link.

14. A communication system as recited in claim 13 wherein the terrestrial communications link is a phone line.

15. A communication system as recited in claim 13 wherein the terrestrial communications link is a cable/television line.

16. A communication system as recited in claim 9, further comprising a second plurality of satellites interleaved between said at least four satellites to increase the elevation angle at the  
5 most populated elevations.

17. A communication system as recited in claim 9, further comprising at least one additional satellite deployed in a medium earth orbit and positioned between two adjacent satellites of the at  
5 least four satellites.

18. A communication system as recited in claim 17, further comprising additional satellites in an inclined medium earth orbit.

19. A communication system as recited in claim 17, wherein said additional satellite uses more current technology than said at least four satellites.

20. A communication system as recited in claim 8, wherein said at least four satellites are in the equatorial plane.